

1. A method of supplementing the blood flow from the heart of a patient using a pump assist system, the method comprising:

directing a first conduit into the left side of the heart,

coupling a second conduit in fluid communication with a

5 superficial artery of the patient,

connecting a pump between the first and second conduits,

implanting the pump in a superficial, subcutaneous area of the patient,

connecting an electrical power supply to the pump,

10 suctioning blood from the left side of the heart through the first conduit and into the pump, and

expelling the blood from the pump into the second conduit and the superficial artery.

2. The method of claim 1, wherein the step of directing a first conduit into the left side of the heart further comprises:

directing the first conduit into a superficial vein and transeptally through the heart.

47. The method of claim 1, wherein the step of implanting the pump further comprises:

implanting the pump superficially and subcutaneously in the chest region of the patient.

54. The method of claim 1, wherein the step of connecting a power supply further comprises:

connecting a transcutaneous power supply by implanting a first portion of said power supply superficially and subcutaneously in the patient and removably coupling a second portion of said supply outside the patient.

65. The method of claim 1, wherein the first conduit is introduced into the left side of the heart through the axillary vein of the patient.

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The method of claim 6, further comprising:

directing a third conduit into the axillary vein,

directing a fourth conduit into the axillary vein, and

pumping blood from the third conduit to the fourth conduit and

- 5 into the right side of the heart to bypass an obstruction formed by the first conduit.

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The method of claim 1, wherein the second conduit is directed into the axillary artery of the patient.

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The method of claim 2, wherein the first conduit includes first and second branches with the first branch communicating with the left side of the heart and the second branch fluidly communicating with the superficial vein, and

- 5 the suctioning step further comprises suctioning blood from the left side of the heart through the first branch and suctioning blood from the superficial vein through the second branch, and

the expelling step further comprises expelling the blood from the first and second branches into the second conduit.

9. The method of claim 1 further comprising:

returning a portion of the expelled blood to the pump before the portion of expelled blood reaches the superficial artery.

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The method of claim 1 further comprising:

returning a portion of the expelled blood to another portion of
the pump assist system to perform a rinsing function.

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11. A method of supplementing the blood flow from the heart of a patient using a pump assist system, the method comprising:

directing a first conduit into the left side of the heart,

coupling a second conduit in fluid communication with a superficial artery of the patient,

connecting a pump between the first and second conduits,

implanting the pump within the patient,

suctioning blood from the left side of the heart through the first conduit and into the pump, and

expelling the blood from the pump into the second conduit and the superficial artery.

12. A system for supplementing blood flow from the heart of a patient, the system comprising:

a first conduit configured to be directed transeptally into the left side of the heart,

a second conduit configured to be coupled for fluid communication with a superficial artery of the patient, and

a pump configured to be superficially implanted within the patient and connected with the first and second conduits to suction blood from the first conduit and expel blood into the second conduit.

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13. The system of claim 12, further comprising:

a transcutaneous power supply having a first portion implantable within the patient and a second portion adapted to be outside the body of the patient and capable of transferring power transcutaneously to the first portion, and

a pad having adhesive on a first side for adhering to the skin of the patient and having a first aligning and connecting member on a second side,

wherein the second portion further includes a second aligning and connecting member configured to engage and mate with the first aligning and connecting member to prevent misalignment between the first and second aligning and connecting portions.

14. The system of claim 12, further comprising:

a third conduit,

a fourth conduit, and

a second pump connected with the first pump and operatively coupled to the third and fourth conduits for suctioning blood from the third conduit and expelling the blood into the fourth conduit.

15. The system of claim 12, wherein the first conduit includes first and second branches, said first branch being configured to suction blood from the left side of the heart and said second branch being configured to suction blood from a superficial vein.

16. The system of claim 12, further comprising:
a return conduit coupled with an outlet of said pump for returning a portion of blood expelled from said pump to internal portions of said pump.

17. The system of claim 12, further comprising:
a return conduit coupled with an outlet of said pump for returning a portion of blood expelled by said pump from the return conduit to another portion of said system.

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A system for supplementing blood flow from the heart of a system comprising:

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a pump configured to be implanted within the patient and connected with the first and second conduits to suction blood from the first conduit and expel blood into the second conduit, and

a return conduit coupled with an outlet of said pump for returning a portion of blood expelled by said pump from the return conduit to another portion of said system.

19. A transcutaneous power supply for use in providing electrical power to an implanted device within a patient, the power supply comprising:

5 a first portion implantable within the patient and a second portion adapted to be outside the body of the patient and capable of transferring power transcutaneously to the first portion,

a pad having adhesive on a first side for adhering to the skin of the patient and having a first aligning and connecting member on a second side, and

10 a second aligning and connecting member on the second portion configured to engage and mate with the first aligning and connecting member to prevent misalignment between the first and second aligning and connecting portions.

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